ABSTRACT

A digitized tomosynthesis method for projecting a 3D volumetric image of an object onto a virtual projection plane that comprises an alpha blend plane subdivided into a rectangular array of pixel cells. A ray of energy defines a trace representing a virtual sight path ray passing from a view point through one pixel cell of the alpha blend plane to define a view level image, wherein a 3D volumetric image of the object is projected by computing the coordinate of an object voxel referenced to the image plane, computing the image plane intercept of the ray of energy from the source through the object voxel, and forming a plurality of successively selected view level image planes at the alpha blend plane by transferring the image pixel cell values at the intersects of the ray trace and the selected view level planes to the image pixel cells at the intersects of the ray trace and the alpha blend plane, the view point and alpha blend plane being translated a level closer to said one image plane for each successive view level. The coordinate of the object voxel referenced to the image plane is computed by (a)

defining a rectangular object bounding box above the XZ plane having a size and height that includes the volume of interest of the object, whereby the bounding box intercepts the radiation cone so that a shadow of the object falls on the active area of the image plate, (b) specifying the coordinate of the voxel referenced to the object bounding box, (c) rotating the voxel coordinate by the pitch, yaw, and roll of the bounding box, and (d) translating the voxel coordinate to the reference point coordinate;